

# Imagine: 500 Miles Per Gallon

**T**HE MOST IMPORTANT STATEMENT MADE LAST WEEK CAME not from Vladimir Putin or George W. Bush but from Ali Naimi, Saudi Arabia's shrewd oil minister. Naimi predicted that crude prices would stay between \$40 and \$50 throughout 2005. For the last two years OPEC's official target price has been \$25. Naimi's statement signals that Saudi Arabia now believes that current high prices are not a momentary thing. An Asian oil-industry executive told me that he expects oil to hit \$75 this decade.

We are actually very close to a solution to the petroleum problem. Tomorrow, President Bush could make the following speech: "We are all concerned that the industrialized world, and increasingly the developing world, draw too much of their energy from one product, petroleum, which comes disproportionately from one volatile region, the Middle East. This dependence has significant political and environmental dangers for all of us. But there is now a solution, one that the United States will pursue actively.

"It is now possible to build cars that are powered by a combination of electricity and alcohol-based fuels, with petroleum as only one element among many. My administration is going to put in place a series of policies that will ensure that in four years, the average new American car will get 300 miles per gallon of petroleum. And I fully expect in this period to see cars in the United States that get 500 miles per gallon. This revolution in energy use will reduce dramatically our dependence on foreign oil and achieve pathbreaking reductions in carbon-dioxide emissions, far below the targets mentioned in the Kyoto accords."

Ever since September 11, 2001, there have been many calls for Manhattan Projects and Marshall Plans for research on energy efficiency and alternate fuels. Beneath the din lies a little-noticed reality—the solution is already with us. Over the last five years, technology has matured in various fields, most importantly in semiconductors, to make possible cars that are as convenient and cheap as current ones, except that they run on a combination of electricity and fuel. Hybrid technology is the answer to the petroleum problem.

You can already buy a hybrid car that runs on a battery and petroleum. The



**OBSOLETE?** Stations need to be converted

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next step is "plug-in" hybrids, with powerful batteries that are recharged at night like laptops, cell phones and iPods. Ford, Honda and Toyota already make simple hybrids. DaimlerChrysler is introducing a plug-in version soon. In many states in the American Middle West you can buy a car that can use any petroleum, or ethanol, or methanol—in any combination. Ford, for example, makes a number of its models with "flexible-fuel tanks." (Forty percent of Brazil's new cars have flexible-fuel tanks.) Put all this technology together and you get the car of the future, a plug-in hybrid with a flexible-fuel tank.

Here's the math (thanks to Gal Luft, a tireless—and independent—advocate of energy security). The current crop of hybrid cars get around 50 miles per gallon.

Make it a plug-in and you can get 75 miles. Replace the conventional fuel tank with a flexible-fuel tank that can run on a combination of 15 percent petroleum and 85 percent ethanol or methanol, and you get between 400 and 500 miles per gallon of gasoline. (You don't get 500 miles per gallon of fuel, but the crucial task is to lessen the use of petroleum. And ethanol and methanol are much cheaper than gasoline, so fuel costs would drop dramatically.)

If things are already moving, why does the government need to do anything? Because this is not a pure free market. Large companies—in the oil and automotive industry—have vested interests in not changing much. There are transition costs—gas stations will need to be fitted to pump methanol and ethanol (at a cost of \$20,000 to \$60,000 per station). New technologies will empower new industries, few of which have lobbies in Washington.

Besides, the idea that the government should have nothing to do with this problem is bizarre. It was military funding and spending that produced much of the technology that makes hybrids possible. (The

military is actually leading the hybrid trend. All new naval surface ships are now electric-powered, as are big diesel locomotives and mining trucks.) And the West's reliance on foreign oil is not cost-free. Luft estimates that a government plan that could accelerate the move to a hybrid transport system would cost \$12 billion. That is what we spend in Iraq in about three months.

Smart government intervention would include a combination of targeted mandates, incentives and spending. And it does not have to all happen at the federal level. New York City, for example, could require that all its new taxis be hybrids with flexible-fuel tanks. Now that's a Manhattan Project for the 21st century.

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